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Dockets Management Branch
(HFA-305) Food & Drug Administration
12420 Parklawn Drive, Room 1-23
Rockville MD 20857

October 22, 1998

Re: Docket No. 97N-0074

United Poultry Concerns appreciates this opportunity to submit the following comments regarding the President's National Food Safety Initiative. United Poultry Concerns, Inc. is a 501(c)(3) national nonprofit organization incorporated in the State of Maryland. We represent thousands of members throughout the United States.

The issue of food safety is directly related to United Poultry Concerns' effort on behalf of the welfare of chickens and other birds used as a human food source. In this regard we recognize that the stressors to which birds and other animals in the food system are subjected make them susceptible to a wide variety of systemic and infectious diseases, many of which can also affect human health and food safety. Diseases such as *Salmonella enteritidis* and *E. coli* can be transmitted directly to humans who eat products derived from infected animals. In addition, people who eat produce are at risk from various pathogens in the animal-based fertilizer in which the produce was grown. Humans are also at risk as a result of cross-contamination with tainted products.

In the February 3, 1995 Federal Register notice of its proposed HACCP rule, the Food Safety and Inspection Service acknowledged the relationship between the treatment of animals in the food system and transmission of foodborne pathogens to humans. FSIS acknowledged that

> There are major aspects in the production phase that can influence incidence, control, and prevention of potential human pathogens. . . . Management systems addressing increased animal welfare and better husbandry decrease levels of stress, and would be expected to decrease the incidence of pathogens. For example, improvements in cattle handling systems reduce stress-related immune suppression associated with animal processing procedures. A number of other factors, such as animal density, frequency of feedlot pen use, and commingling of sick animals, can affect stress levels and thus risk of human pathogen exposure. . . . Stressed animals have lowered disease resistance, making them more susceptible to pathogens and at increased risk of shedding potential human pathogens. Various forms of stress can result in increased shedding and clinical disease,

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causing increased exposure to penmates, increasing the risk also to humans through contaminated meat."

Stressors include genetic impositions as well as handling and management. Three major stressors, the elimination of which would reduce both suffering and foodborne diseases in birds and humans are: (1) Forced rapid growth of "meat-type" birds; (2) Deliberate prolonged food withdrawal from birds used for meat and eggs; and (3) Ammonia concentration in intensive avian confinement facilities.

(1) Forced Rapid Growth of "Meat-Type" Birds. Today's chickens and turkeys have been genetically pushed beyond their biological capacity. Enormous suffering has been built into their systems. Genetic selection for forced rapid growth has resulted in birds that grow three-and-one-half times faster than birds of thirty-five years ago, resulting in severe metabolic stress (*Feedstuffs* Aug. 26, 1996:10). This stress is of itself an immunosuppressive condition which results in increased susceptibility to bacterial infection of poultry. *Commercial Chicken Production Manual*, 4th ed. states that these birds "have a lymphatic involution with an atrophy of the bursa of Fabricius, thymus, and spleen, the lymphoid associates, and are less able to withstand bacterial invasion because antibody production is lower" (North & Bell, 863).

Therefore, a long-term vision for food safety in the U.S., as long as birds are part of the food system, would have to include the elimination of genetic selection for growth rate of "meat-type" birds and promotion of their biological wellbeing.

(2) Deliberate Prolonged Food Withdrawal. (a) **Food Withdrawal Prior to Slaughter.** Food and water are deliberately withdrawn from broiler chickens and turkeys from one to four hours before catching and from commercial laying hens for three to four days before catching. Removal of food and water from birds prior to transport disrupts their gastrointestinal tract and impairs their immunity, increasing the number of birds infected with *Salmonella* ten times above the number of birds infected before catching (Fliss, *Southern Poultry* Oct. 1993:15).

(b) **Forced molting of hens used for egg production.** Forced molting refers to the manipulation of hormones in hens to manipulate egg production by means of prolonged intentional starvation of the birds. Each year, the U.S. egg industry intentionally deprives millions of hens of all food for an average of one to two weeks, until they lose 25 to 35 percent of

their body weight. Forced molting is so stressful that it increases bone breakage and impairs the hens' immune system, predisposing the birds and their eggs to *Salmonella* infection. USDA immunologist Peter Holt reports that while unmolted hens usually have to ingest 50,000 Salmonella cells to become infected, molted hens need fewer than ten (*Avian Diseases* 37:412-417). Once infected, these hens are more likely to lay contaminated eggs. "Molting, in combination with an SE (*Salmonella enteritidis*) infection, created an actual disease state in the alimentary tract of affected hens" (Holt, *Poultry Science* 71:1842-1848).

Forced molting has been shown to increase the transmission of *Salmonella enteritidis* through the layer environment and to increase the consumption of contaminated feathers by hens attempting to cope with the hunger and starvation imposed on them (Holt, *Avian Diseases* 39:239-249).

Therefore, a long-term vision of food safety in the U.S., as long as birds are part of the food system, would have to include the elimination of forced molting in particular, and food withdrawal in general, as birds deprived of food for hours, days and weeks lose immunity through stress and nutrient deprivation, predisposing them to *Salmonella enteritidis* and other pathogens.

To this end, in April 1998, United Poultry Concerns and the Association of Veterinarians for Animal Rights filed a petition with the U.S. Department of Agriculture (APHIS, FSIS) and the U.S. Food and Drug Administration urging that the forced molting of hens used for commercial and hatching egg production be eliminated (FDA Docket No. 98P-0203/CP).

(3) Ammonia Concentration in Intensive Avian Confinement Facilities. Excretory ammonia is a colorless irritant gas produced by microbial activity on the nitrogen excretion content, uric acid, in poultry manure. Ammonia stress is a major cause of respiratory infection in intensively confined chickens and turkeys. Ammonia concentration impairs the birds' immune system. Ammonia dissolves in the liquid on the birds' mucous membranes and eyes to produce ammonium hydroxide, an irritating alkali-causing ammonia-burn that stimulates the production of excessive mucous in the trachea. This mucous mats, and ultimately destroys, the tracheal cilia which served to block the entry of harmful agents into the system, inviting colonization of the airways by airborne microorganisms such as *E. coli* and Newcastle disease virus. The bursa of Fabricius, which is the part of the avian lymphoid immune system that produces circulating antibodies, is

likewise impaired by ammonia, so that when pathogens are inhaled, and the immune cells of the respiratory tract cannot mount a response, neither can the lymphoid system respond. The National Turkey Federation *Food Safety Best Management Practices for the Production of Turkeys: Meat Bird Production/Growout* states that

> Ammonia in the air is absorbed into the blood of turkeys and causes immunosuppression. It prevents phagocytosis of E. coli organisms in the blood and suppresses the lysis of E. coli organisms within the macrophage cells. It can be a major factor in contributing to an outbreak of colibacillosis or turkey coryza (10).

Therefore, a long-term vision of food safety in the U.S., as long as birds are part of the food system, would have to include reduction and removal of ammonia pollution. In addition to the immunosuppressive effects of ammonia concentration in poultry and hen complexes, predisposing the birds to *E. coli* and other infections, studies of the effect of ammonia on egg whites indicate that even at low concentrations, significant quantities of ammonia can be absorbed into eggs (Carlile, *World's Poultry Science* 40:99-113).

Conclusion. A report published by the U.S. Department of Agriculture's Economic Research Service states: "The annual cost of human illness caused by seven foodborne pathogens for which we have estimates ranges between $5.6 billion and $9.4 billion. Meat and poultry are the primary sources. . . . Foods most likely to carry pathogens are high-protein, nonacid foods, such as meat poultry, seafood, dairy products, and eggs" (Buzby and Roberts, *FoodReview* May-Aug. 1995:37-42). The USDA publication *Agricultural Research* (Smith, Oct. 1996:16) noted that *Salmonella, Campylobacter* and other animal-derived pathogens can lead to inflammation and destruction of organs and joints that are "far removed from the site of infection," predisposing individuals to degenerative diseases such as arthritis.

While United Poultry Concerns supports every effort to reduce the pain and suffering of animal used for food, we regard an animal-based diet as inconsistent with either a long- or a short-term vision for food safety. The production, consumption, and promotion of meat, poultry, dairy products, and eggs are barriers to pursuing this vision. The most glaring gaps in the food safety vision/system are the animals themselves. Animals are rhetorically absent from the discussion. The National Research Council's *Ensuring Safe Food* (1998) epitomizes this absence. It is significant that FSIS's February 3, 1995 Federal Register notice of its then proposed HACCP rule subsequently omitted the part, quoted above, about the effect of inhumane treatment of

animals (e.g. poor husbandry, harsh handling, filthy environment) on the incidence of pathogens in the human food supply. It is significant that the document's acknowledgment that a regard for animal welfare is a responsibility in its own right was deleted. This section should be restored and implemented.

A related gap is the failure to include in the vision the goal of an animal-free vegetarian diet comprised of fruits, grains, nuts, leafy greens, and legumes. It is justifiably claimed that all of the suffering endured by animals raised for food is unnecessary suffering. Virtually the same thing can be said regarding the suffering endured by humans as a result of their consumption of animal products. Instead of our directing resources to dealing with the inherent, ever-changing disease and welfare problems of mass-production and mass-consumption of poultry, for example, the 30 million bushels of high-protein soybeans produced on the Eastern Shore each year to feed chickens should be harvested and processed directly for human consumption. This is where the creative ingenuity of the present and future should be focused. As long as there are people on the planet, the same amount of food will be consumed. Human food does not have to include, and, if we are genuinely serious about improving our health and food safety, and reducing our health-care costs, it should not include animal products. In any case, neither a slaughterhouse nor an intensive animal confinement unit is compatible with a positive vision.

United Poultry Concerns appreciates the opportunity to submit these comments regarding the President's National Food Safety Initiative.

Sincerely,

Karen Davis, PhD
President

Enclosure: ASCII file

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